CLAIMS

What is claimed is:

1. A process for cleaning substrates comprising:

cleaning the substrates with an organic solvent; and

removing the organic solvent from the substrates using a pressurized fluid

wherein the organic solvent is of the structural formula:

wherein x, y, and z each is zero or

at least one of x, y, and z is one;

R' is C_jH_{2j+1} wherein j is an integer between one and (13-3(x+y+z)), inclusive;

and

 R_{1-3} are independently H or ϕH_3 . A process for cleaning substrates comprising:

cleaning the substrates with an organic solvent; and

removing the organic solvent from the substrates using a pressurized fluid solvent;

wherein the organic solvent is of the structural formula:

$$H = (O - C)_{x} - (O - C - C)_{y} - (O - C - C)_{z} - R' - R''$$

$$= (O - C)_{x} - (O - C - C)_{y} - (O - C - C)_{z} - R' - R''$$

$$= (O - C)_{x} - (O - C - C)_{y} - (O - C - C)_{z} - R' - R''$$

$$= (O - C)_{x} - (O - C - C)_{y} - (O - C - C)_{z} - R' - R''$$

$$= (O - C)_{x} - (O - C)_{x} - (O - C)_{y} - (O - C)_{z} - R' - R''$$

$$= (O - C)_{x} - (O - C)_{x} - (O - C)_{y} - (O - C)_{z} - R' - R''$$

$$= (O - C)_{x} - (O - C)_{x} - (O - C)_{y} - (O - C)_{z} - R' - R''$$

wherein x, y, and z each is zero or one;

at least one of x, y, and z is one;

R" is benzyl/phenyl, partially or fully fluorinated benzyl or phenyl, C_jH_{2j+1} , or C_iH_aF_b wherein j is an integer between one and (13-3(x+y+z)), inclusive, a and b each is independently an integer between zero and 2j+1, inclusive, and a+b=2j+1;

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 R_{1-12} are independently $C_m H_n F_p$ or $C_d H_e F_g$ where m is an integer between zero and two, inclusive, n and p are integers between zero and five, inclusive and n+p=2m+1, d is an integer between zero and two, inclusive, e and g are integers between zero and five, inclusive, and e+g=2d+1; and R' is O, S, carbonyl or ester.

3. The process of claim 2 wherein:

R' is O;

R'' is C_iH_{2i+1} ;

R₁₋₃ are independently H or CH₃; and

R₄₋₁₂ each is H.

4. The process of claim 2 wherein:

R' is S, carbonyl or ester;

R'' is C_iH_{2i+1} ;

R₁₋₃ are independently H or CH₃; and

 R_{4-12} each is H.

5. The process of claim 2 wherein:

R' is O;

R" is C_iH_{2i+1};

R₁₋₃ are independently H, CH₃, or C₂H₅; and

at least one of R₁₋₃ is CH₂CH₃; and

 R_{4-12} are each H.

6. The process of claim 2 wherein:

R' is S, carbonyl or ester;

R'' is C_iH_{2i+1} ;

R₁₋₃ are independently H, CH₃, or C₂H₅; and

at least one of R₁₋₃ is CH₂CH₃; and

R₄₋₁₂ are each H.

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7. The process of claim 2 wherein:

R' is O;

R'' is C_jH_{2j+1} ;

R₁₋₉ are each H;

R₁₀₋₁₂ are independently H or CH₃; and at least one of R₁₀₋₁₂ is CH₃.

8. The process of claim 2 wherein:

R' is S, carbonyl or ester;

R'' is C_iH_{2i+1} ;

R₁₋₉ are each H;

 R_{10-12} are independently H or CH_3 ; and at least one of R₁₀₋₁₂ is CH₃.

9. The process of claim 2 wherein:

R' is O;

R'' is C_iH_{2j+1} ;

R₁₋₉ are each H;

 R_{10-12} are independently H, CH_3 , or C_2H_5 ; and at least one of R₁₀₋₁₂ is CH₂CH₃.

. 10. The process of claim 2 wherein:

R' is S, carbonyl or ester;

R'' is C_iH_{2i+1} ;

R₁₋₉ are each H;

 R_{10-12} are independently H, CH_3 , or C_2H_5 ; and at least one of R₁₀₋₁₂ is CH₂CH₃.

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11. The process of claim 2 wherein:

R' is O;

R'' is $C_iH_aF_b$;

 R_{1-3} are independently H, F, CH_3 , CH_2F , CHF_2 , or CF_3 ; And at least one is CH_3 , CH_2F , CHF_2 , or CF_3 ; and R_{4-12} are independently H or F.

12. The process of claim 2 wherein:

R' is S, carbonyl, or ester;

R" is C_iH_aF_{b:}

 R_{1-3} are independently H, F, CH_3 , CH_2F , CHF_2 , or CF_3 ; And at least one is CH_3 , CH_2F , CHF_2 , or CF_3 ; and R_{4-12} are independently H or F.

13. The process of claim 2 wherein:

R₁₋₃ are independently C_mH_nF_p;

at least one of R₁₋₃ is C₂H_nF_p;

R₄₋₁₂ are independently H or F;

R' is O; and

R" is $C_iH_aF_b$.

14. The process of claim 2 wherein:

 R_{1-3} are independently $C_mH_nF_p$; at least one of R_{1-3} is $C_2H_nF_p$; R_{4-12} are independently H or F; R' is S, carbonyl or ester; and R" is $C_iH_aF_b$.

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15. The process of claim 2 wherein:
R₁₋₉ are independently H or F;
R₁₀₋₁₂ are independently H, F, CH₃, CH₂F, CHF₂ or CF₃;
at least one of R₁₀₋₁₂ is CH₃, CH₂F, CHF₂ or CF₃;
R' is O; and
R" is C_iH_aF_b.

16. The process of claim 2 wherein:
R₁₋₉ are independently H or F;
R₁₀₋₁₂ are independently H, F, CH₃, CH₂F, CHF₂ or CF₃;
at least one of R₁₀₋₁₂ is CH₃, CH₂F, CHF₂ or CF₃;
R' is S, carbonyl or ester; and
R" is C_iH_aF_b.

17. The process of claim 2 wherein:

R' is O;

R" is $C_jH_aF_b$; R_{1-3} are independently $C_mH_nF_p$; R_{4-9} are independently H or F; and R_{10-12} are independently $C_dH_eF_q$.

18. The process of claim 2 wherein:
R' is S, carbonyl or ester;
R" is C_jH_aF_b;
R₁₋₃ are independently C_mH_nF_p;
R₄₋₉ are independently H or F; and
R₁₀₋₁₂ are independently C_dH_eF_g.

	R' is O;
	R" is benzyl or phenyl;
	R_{1-3} are independently H, CH_3 , or C_2H_5 ;
5	at least one of R ₁₋₃ is CH ₂ CH ₃ ; and
	R ₄₋₁₂ are each H.

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20. The process of claim 2 wherein:

R' is S, carbonyl or ester;

R" is benzyl or phenyl;

R₁₋₃ are independently H, CH₃, or C₂H₅;

at least one of R₁₋₃ is CH₂CH₃; and

R₄₋₁₂ are each H.

The process of claim 2 wherein:

- The process of claim 2 wherein:
 R' is O;
 R" is benzyl or phenyl;
 R₁₋₉ are each H;
 R₁₀₋₁₂ are independently H or CH₃; and at least one of R₁₀₋₁₂ is CH₃.
- The process of claim 2 wherein:
 R' is S, carbonyl or ester;
 R" is benzyl or phenyl;
 R₁₋₉ are each H;
 R₁₀₋₁₂ are independently H or CH₃; and at least one of R₁₀₋₁₂ is CH₃.

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23. The process of claim 2 wherein:

R' is O;

R" is benzyl or phenyl;

R₁₋₉ are each H;

 R_{10-12} are independently H, CH_3 , or C_2H_5 ; and at least one of R_{10-12} is CH_2CH_3 .

24. The process of claim 2 wherein:

R' is S, carbonyl or ester;

R" is benzyl or phenyl;

R₁₋₉ are each H;

 R_{10-12} are independently H, CH_3 , or C_2H_5 ; and at least one of R_{10-12} is CH_2CH_3 .

25. The process of claim 2 wherein:

 $R^{\prime\prime}$ is benzyl, phenyl, or partially or fully fluorinated benzyl or phenyl;

 R_{1-3} are independently $C_mH_nF_p$; at least one of R_{1-3} is $C_2H_nF_p$; R_{4-12} are independently H or F; and R' is O.

26. The process of claim 2 wherein:

 R'' is benzyl, phenyl, or partially or fully fluorinated benzyl or phenyl;

 R_{1-3} are independently $C_mH_nF_p$; at least one of R_{1-3} is $C_2H_nF_p$; R_{4-12} are independently H or F; and R' is S, carbonyl or ester.

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27. The process of claim 2 wherein:

 $R^{\prime\prime}$ is benzyl, phenyl, or partially or fully fluorinated benzyl or phenyl;

R₁₋₉ are independently H or F;

 R_{10-12} are independently H, F, CH_3 , CH_2F , CHF_2 or CF_3 ; at least one of R_{10-12} is CH_3 , CH_2F , CHF_2 or CF_3 ; and R' is O.

28. The process of claim 2 wherein:

 R'' is benzyl, phenyl, or partially or fully fluorinated benzyl or phenyl;

R₁₋₉ are independently H or F;

 R_{10-12} are independently H, F, CH_3 , CH_2F , CHF_2 or CF_3 ; at least one of R_{10-12} is CH_3 , CH_2F , CHF_2 or CF_3 ; and R' is S, carbonyl or ester.

29. The process of claim 2 wherein:

R" is benzyl, phenyl, or partially or fully fluorinated benzyl or phenyl;

R₁₋₉ are independently H or F;

 R_{10-12} are independently $C_m H_n F_p$; at least one of R_{10-12} is $C_2 H_n F_p$; and

R' is O.

30. The process of claim 2 wherein:

R" is benzyl, phenyl, or partially or fully fluorinated benzyl or phenyl;

R₁₋₉ are independently H or F;

 R_{10-12} are independently $C_m H_n F_p$;

at least one of R₁₀₋₁₂ is C₂H_nF_p; and

R' is S, carbonyl or ester.

31. The process of claim 2 wherein:

R' is O;

R" is benzyl, phenyl, or partially or fully fluorinated benzyl or phenyl;

 R_{1-3} are independently $C_m H_n F_p$;

R₄₋₉ are independently H or F; and

 R_{10-12} are independently $C_dH_eF_g$.

32. The process of claim 2 wherein:

R' is S, carbonyl or ester;

 $\ensuremath{\mathsf{R}}''$ is benzyl, phenyl, or partially or fully fluorinated benzyl or phenyl;

 R_{1-3} are independently $C_m H_n F_p$;

R₄₋₉ are independently H or F; and

 R_{10-12} are independently $C_dH_eF_g$.

33. A process for cleaning substrates comprising:

cleaning the substrates with an organic solvent; and

removing the organic solvent from the substrates using a pressurized fluid

∕solvent;

wherein the organic solvent is of the structural formula:

$$R^{1V} - (O - C - C)_{x} - (O - C - C)_{y} - (O - C - C)_{y} - (O - C - C)_{z} - R' - R''$$

$$R^{1V} - (O - C - C)_{x} - (O - C - C)_{y} - (O - C - C)_{z} - R' - R''$$

$$R_{4} - R_{10} - R_{5} - R_{11} - R_{6} - R_{12}$$

wherein x, y, and z each, is zero or one;

at least one of x, y, and z is one;

R'' is $C_jH_uF_v$ and R^{IV} is $C_kH_rF_s$ wherein j and k are each an integer between one and (13-3(x+y+z)), inclusive, and j+k is an integer between two and (13-3(x+y+z)), inclusive, u and v are each an integer between zero and 2j+1, inclusive,

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and u+v=2j+1, and r and s are each an integer between zero and 2k+1, inclusive, and r+s=2k+1;

 R_{1-3} and R_{10-12} are independently $C_mH_nF_p$, where m is an integer between zero and two, inclusive, n and p are integers between zero and five, inclusive and n+p=2m+1;

R₄₋₉ are independently H, F or CH₃; and R' is O, S, carbonyl or ester.

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The process of claim 33 wherein: 34.

R' is O;

R'' is C_iH_{2i+1} ;

 R^{IV} is $C_k H_{2k+1}$;

R₁₋₃ are independently H or CH₃; and

 R_{4-12} are each H.

35. The process of claim 33 wherein:

R' is S, carbonyl or ester;

R'' is C_iH_{2i+1} ;

 R^{IV} is $C_k H_{2k+1}$;

R₁₋₃ are independently H or CH₃; and

R₄₋₁₂ are each H.

The process of claim 33 wherein: 36.

R' is O;

R'' is C_iH_{2i+1} ;

 R^{IV} is $C_k H_{2k+1}$;

R₁₋₃ are independently H, CH₃, or C₂H₅;

at least one of R₁₋₃ is CH₂CH₃; and

R₄₋₁₂ are each H.

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37. The process of claim 33 wherein:

R' is S, carbonyl or ester;

$$R''$$
 is C_jH_{2j+1} ;

 R^{IV} is C_kH_{2k+1} ;

 R_{1-3} are independently H, CH_3 , or C_2H_5 ; at least one of R_{1-3} is CH_2CH_3 ; and R_{4-12} are each H.

38. The process of claim 33 wherein:

R' is O;

R'' is C_iH_{2i+1} ;

 R^{IV} is $C_k H_{2k+1}$;

R₁₋₉ are each H;

 R_{10-12} are independently H or CH_3 ; and at least one of R_{10-12} is CH_3 .

39. The process of claim 33 wherein:

R' is S, carbonyl or ester;

$$R''$$
 is C_jH_{2j+1} ;

 R^{IV} is C_kH_{2k+1} ;

R₁₋₉ are each H;

 R_{10-12} are independently H or CH_3 ; and at least one of R_{10-12} is CH_3 .

40. The process of claim 33 wherein:

R' is O;

R'' is C_iH_{2i+1} ;

 R^{IV} is C_kH_{2k+1} ;

R₁₋₉ are each H;

 R_{10-12} are independently H, CH_3 , or C_2H_5 ; and at least one of R_{10-12} is CH_2CH_3 .

41. The process of claim 33 wherein:

R' is S, carbonyl or ester;

R'' is C_jH_{2j+1} ;

 R^{IV} is C_kH_{2k+1} ;

R_{1.9} are each H;

 R_{10-12} are independently H, CH_3 , or C_2H_5 ; and at least one of R_{10-12} is CH_2CH_3 .

42. The process of claim 33 whereigh:

 R_{1-3} are independently H, F, OH_3 , CH_2F , CHF_2 , or CF_3 ;

R₄₋₁₂ are independently H of F; and

R' is O.

43. The process of claim 33 wherein:

R₁₋₃ are independently H, F, CH₃, CH₂F, CHF₂, or CF₃;

R₄₋₁₂ are independently H or F; and

R' is S, carbonyl/or ester.

44. The process of claim 33 wherein:

at least one of R_{1-3} is $C_2H_nF_p$;

R₄₋₁₂ are each independently H or F; and

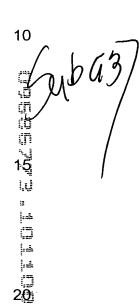
R' is O.

45. The process of claim 33 wherein:

at least one of R₁₋₃ is C₂H_nF_p;

 $R_4/_{12}$ are each independently H or F; and

R is S, carbonyl or ester.



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- 46. The process of claim 33 wherein:

 R₁₋₉ are independently H or F;

 R₁₀₋₁₂ are independently H, F/CH₃, CH₂F, CHF₂ or CF₃; at least one of R₁₀₋₁₂ is CH₃, CH₂F, CHF₂ or CF₃; and R' is O.
- 47. The process of claim 33/wherein:

 R₁₋₉ are independently H or F;

 R₁₀₋₁₂ are independently H, F, CH₃, CH₂F, CHF₂ or CF₃;

 at least one of R₁₀₋₁₂ is CH₃, CH₂F, CHF₂ or CF₃; and

 R' is S, carbonyl or ester.
- 48. The process of plaim 33 wherein: R_{1-9} are independently H, F, CH_3 , CH_2F , CHF_2 or CF_3 ; at least one of R_{10-12} is $C_2H_nF_p$; and R' is O.
- 49. The process of claim 33 wherein:

 R₁₋₉ are independently H, F, CH₃, CH₂F, CHF₂ or CF₃; at least one of R₁₀₋₁₂ is C₂H_nF_p; and R' is S, carbonyl or ester.

50. A process for cleaning substrates comprising:
cleaning the substrates with an organic solvent; and
removing the organic solvent from the substrates using a pressurized fluid
solvent;

wherein the organic solvent is of the structural formula:

 $R^{V} = \begin{pmatrix} R_{1} & R_{7} & R_{2} & R_{8} & R_{3} & R_{9} \\ | & | & | & | & | & | & | \\ | & 0 - C - C)_{x} - (O - C - C)_{y} - (O - C - C)_{z} - O - R'' \\ | & | & | & | & | & | \\ | & R_{4} & R_{10} & R_{5} & R_{11} & R_{6} & R_{12} \end{pmatrix}$

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wherein x, y, and z are each zero or one, at least one of x, y, and z is one;

P" is selected from the group including:

R" is selected from the group including:

wherein R''' is H/F or combinations of H and F;

R^{IV} is selected from th∉ group including:

wherein R^v is H, F or combinations of H and F; and when R" is H or F, R^{IV} is not H or F.

R₁₋₃ are independently H, F, CH₃, CH₂F, CHF₂ or CF₃; and R₄₋₁₂ are independently H or F.

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R^Ⅳ is:

Н

or

wherein R^V is H, F or combinations of H and F; and

wherein R''' is H, F or combinations of H and F.

52. The process of claim 50 wherein:

R" is:

Н

or

wherein R''' is H, F or combinations of H and F; and

R^Ⅳ is:

$$CR_{3}^{V} CR_{3}^{V} CR_{3}^{V}$$
 $CR_{3}^{V} - Si - O - Si - ;$
 $CR_{3}^{V} CR_{3}^{V}$

wherein R^V is H, F or combinations of H and F.

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53. The process of claim 50 wherein:

R" is: H; F;

wherein R" is H, F or combinations of H and F; and

R^{IV} is:

H;
F; or

CR^V₃

CR^V₃

Wherein

wherein R^{V} is H, F or combinations of H and F; and when R'' is H or F, R^{IV} is not H or F.

54. The process of claim 50 wherein:

R₁₋₃ are independently H or CH₃;

R₄₋₁₂ are each H;

R^{IV} is:

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or

$$\begin{array}{c} \operatorname{CH_3} \\ | \\ \operatorname{CH_3} - \operatorname{Si} - \\ | \\ \operatorname{CH_3} \end{array}$$

and

R" is: CH₃ CH₃ - Si - O - Si - CH₃

CH₃

CH₃

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55. The process of claim 50 wherein:

R₁₋₃ are independently H or CH₃;

R₄₋₁₂ are each H;

R" is:

Н

or

and

R^Ⅳ is:

$$CH_3$$
 CH_3 $|$ $|$ $|$ $CH_3 - Si - O - Si - ;$ $|$ $|$ CH_3 CH_3 .

56. The process of claim 50 wherein:

R₁₋₃ are independently H or CH₃;

R₄₋₁₂ are each H;

R" is:

or

A process for cleaning substrates comprising:

removing the organic solvent from the substrates using a pressurized fluid

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wherein the organic solvent is of the structural formula:

wherein R''' is O and j is 1 or R''' is N and j is 2;

n is an integer between zero and two;

R^{IV} are each independently H, CH₃ or CH₂CH₃ and k is an integer between zero and two inclusive; and

wherein R is C_yH_{2y+1} and y is an integer between one and (12- (3k+3n+x)) inclusive, and x is an integer between one and (12-(3k+y)), inclusive.

5 /so

58. A process for cleaning substrates comprising:

cleaning the substrates with an organic solvent; and

removing the organic solvent from the substrates using a pressurized fluid

/solvent;

wherein the organic solvent is of the structural formula:

$$R - O - C_xH_{2x} - O - (C - C - R''')_k - H$$
 $R - O - C_xH_{2x} - O - (C - C - R''')_k - H$
 $R'' - R''$
 $R'' - R'''$
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wherein R''' is O and j is 1 or R''/is N and j is 2;

R^{IV} are each independently H/CH₃ or CH₂CH₃ and k is an integer between zero and two inclusive; and

wherein R is C_yH_{2y+1} and y is an integer between one and (12- (3k+x)) inclusive, and x is an integer between one and (12-(3k+y)), inclusive.